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Tokunori Kimura

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NIXON & VANDERHYE, PC
901 NORTH GLEBE ROAD, 11TH FLOOR
ARLINGTON, VA 22203

EXAMINER

ZARKA, DAVID PETER

ART UNIT

PAPER NUMBER

2624

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/596,052	KIMURA, TOKUNORI	
	Examiner	Art Unit	
	DAVID P. ZARKA	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 February 2011.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14, 16-18, 20-29, 37, 38, 41, 42 and 45 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-14, 16-18, 20, 21, 24-27, 42 and 45 is/are allowed.
- 6) ☒ Claim(s) 22, 23, 28, 29, 37, 38 and 41 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Table of Contents

Amendment & Claim Status	2
Claim Rejections - 35 U.S.C. § 112	3
Claim Rejections - 35 U.S.C. § 101	3
Software Apparatus Claims	3
Bilski – Abstract Idea Test	4
Claim Rejections - 35 U.S.C. § 103	5
Takizawa in view of Edelstein	5
Allowable Subject Matter	7
Reasons for Indicating Allowable Subject Matter	7
Conclusion	7

Amendment & Claim Status

[1] This Detailed Action is responsive to Amendment Under 37 C.F.R. § 1.111 (“Amendment”) received Feb. 22, 2011. Claims 1-14, 16-18, 20-29, 37, 38, 41, 42 and 45 pending.

In response to Amendment, the previous objected title as not being descriptive; rejected Claims 1-14, 16-29, 37, 38, 41, and 42 under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement; rejected Claims 8, 18, 21, 25 and 26 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention; rejected Claims 1-14, 16-29, and 42 under 35 U.S.C. § 101 because the claimed invention is directed to non-statutory subject matter; rejected Claims 1-5, 7, 9, 11-18, 20, 24, 27, 37, 38, 41 and 42 under § 103(a) as being unpatentable over Takizawa et al., J.P. 2000-157507 (“Takizawa”) in view of Edelstein et al., Spin-Warp NMR Imaging and Applications to Human Whole-Body Imaging, Physics in Medicine and Biology, Vol. 25, pp. 751-756, 1980 (“Edelstein”); and rejected Claim 6 under § 103(a) as being unpatentable over Takizawa in view of Edelstein, and in further view of Kretschmer et al., U.S. Pat. No. 4,945,916 (“Kretschmer”) are withdrawn.

Art Unit: 2624

Claim Rejections - 35 U.S.C. § 112

[2] The following is a quotation of the second paragraph of 35 U.S.C. § 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

[3] **Claims 22 and 23** are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Both dependent Claims 22 and 23 depend from a cancelled claim.

Claim Rejections - 35 U.S.C. § 101

Software Apparatus Claims

[4] The USPTO "Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility" (Official Gazette notice of 22 November 2005), Annex IV, reads as follows (see also § MPEP 2106):

Descriptive material can be characterized as either "functional descriptive material" or "nonfunctional descriptive material." In this context, "functional descriptive material" consists of data structures and computer programs which impart functionality when employed as a computer component. (The definition of "data structure" is "a physical or logical relationship among data elements, designed to support specific data manipulation functions." The New IEEE Standard Dictionary of Electrical and Electronics Terms 308 (5th ed. 1993).) "Nonfunctional descriptive material" includes but is not limited to music, literary works and a compilation or mere arrangement of data.

When functional descriptive material is recorded on some computer-readable medium it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized. Compare *In re Lowry*, 32 F.3d 1579, 1583-84, 32 USPQ2d 1031, 1035 (Fed. Cir. 1994) (claim to data structure stored on a computer readable medium that increases computer efficiency held statutory) and *Warmerdam*, 33 F.3d at 1360-61, 31 USPQ2d at 1759 (claim to computer having a specific data structure stored in memory held statutory product-by-process claim) with *Warmerdam*, 33 F.3d at 1361, 31 USPQ2d at 1760 (claim to a data structure per se held nonstatutory).

In contrast, a claimed computer-readable medium encoded with a computer program is a computer element which defines structural and functional interrelationships between the computer program and the rest of the computer which permit the computer program's functionality to be realized, and is thus statutory. See *Lowry*, 32 F.3d at 1583-84, 32 USPQ2d at 1035.

[5] **Claim 41** is rejected under 35 U.S.C. § 101 because the claimed invention is directed to non-statutory subject matter. While the claim preamble recites an "image data correcting device", the body of the claim presents a series of steps or actions, and lacks corresponding structure for accomplishing those steps or actions. See, e.g., Specification at ¶0039 (indicating

Art Unit: 2624

“an unillustrated stored software procedure, and generalizing the operation of the entire device”). Claim 41 is drawn to functional descriptive material, but functional descriptive material alone does not solely fall within a statutory category. See MPEP § 2106.01. Therefore, given the lack of claimed structure, the full scope of the claim when properly read in light of the disclosure appears encompass software per se, which does not fall within a statutory category.

Bilski – Abstract Idea Test

[6] **Claims 37 and 38** are rejected under 35 U.S.C. § 101 as not falling within one of the four statutory categories of invention.

In view of Supreme Court precedent¹ and recent opinion in *Bilski*², process/method claims (“method-claims”) under § 101 are patent-eligible so long as it is not disqualified as one of the exceptions to § 101 (i.e., laws of nature, physical phenomena, and abstract idea). The USPTO has recently provided guidance to determine whether the method-claim, viewed as a whole, is disqualified as an abstract idea.³ Factors for determining whether a method-claim is drawn to an abstract idea, as a whole, include whether the method-claim is (i) tied to a particular machine or apparatus; (ii) transforms underlying subject matter (such as an article or material) to a different state or thing; (iii); involves an application of a law of nature; and (iv) a general concept (e.g., mathematical concept, mental activity, principle, theory) involved in executing the method-steps.⁴ In addition, extrasolution activity (whether pre- or post-) or field-of-use involvement in favor of patent-eligible subject matter (e.g., involving a particular machine or article transformation) for the method-claim, as a whole, must impose meaningful limits on the execution of the claimed method-steps.⁵

The concept of Claims 37 and 38, i.e., making a correction different from that of a second area in a first area of image data of a body by a scan of MRI, is not tied to a particular machine

¹ See *Diamond v. Diehr*, 450 U.S. 175, 184 (1981); *Parker v. Flook*, 437 U.S. 584, 588 n.9 (1978); *Gottschalk v. Benson*, 409 U.S. 63, 70 (1972); and *Cochrane v. Deener*, 94 U.S. 780, 787-88 (1876).

² *Bilski v. Kappos*, 561 U.S. ____ (2010).

³ See Interim Guidance for Determining Subject Matter Eligibility for Process Claims in View of *Bilski v. Kappos*, Federal Register, Vol. 75, No. 143, pp. 43922-43928, Jul. 27, 2010 (available at <http://www.uspto.gov/patents/law/notices/75fr36357.pdf>).

⁴ Id.

⁵ Id.

Art Unit: 2624

and does not transform an underlying article, and thus remains solely a concept. Firstly, acquiring movement information and using “a scan of magnetic resonance imaging” (i) may be strictly image-analysis (i.e., mathematical computation of an image signal); or (ii) is pre-solution activity (i.e., if the body is physical). Secondly, the method “using at least one programmed computer” is intended usage as cited in the preamble of the claim.

The method-steps that do impose meaningful limits do not require a particular machine or transform an underlying article. The concept from Claims 37 and 38 remains an unpatentable abstract idea. Allowing Applicant(s) to patent the concept would preempt use of this approach in all fields, and would grant a monopoly over the abstract idea.⁶

It is suggested to tie a particular machine (e.g., a “computer processor” if supported in the specification, not “machine”) to a meaningful limit on the claim’s scope (e.g., the correction method-step of Claims 37 and 38).

Claim Rejections - 35 U.S.C. § 103

[7] The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Takizawa in view of Edelstein

[8] **Claims 28 and 29** are rejected under § 103(a) as being unpatentable over Takizawa et al., J.P. 2000-157507 (“Takizawa”) in view of Edelstein et al., Spin-Warp NMR Imaging and Applications to Human Whole-Body Imaging, Physics in Medicine and Biology, Vol. 25, pp. 751-756, 1980 (“Edelstein”).

Regarding **Claim 28**, Takizawa discloses an image data correcting device (fig. 1) comprising at least one programmed computer connected to execute program code which includes:

⁶ See Bilski at 15.

Art Unit: 2624

a correcting section (fig. 1, item 407) for making a correction different (fig. 8, items 1022 and 1023 are different) from that of a second area (fig. 8, top-right inner circle within item 1011) in a first area (fig. 8, bottom-right inner circle within item 1011) of image data of an image pickup part (fig. 1, item 405; fig. 8) of said detected body (fig. 8, item 1011 and the four smaller circles contained within item 1011) collected by a scan of magnetic resonance imaging (fig. 1) on the basis of said movement information (“signal processing part 407 has the body motion compensation means using the navigation echo” at ¶ 0015) showing a spatial distribution (e.g., fig. 8 shows a spatial distribution) of the magnitude of a movement in the real space of said image pickup part (fig. 1, item 405; fig. 8); and

a synthesizing section (fig. 1, item 408) for synthesizing respective image data of said first area and said second area corrected by said correcting section (“[t]he combined picture is displayed by the indicator 408” at ¶ 0015), and

an image data collecting section (fig. 1, item 406) for executing said scan by using a pulse sequence constructed by a pulse series in a pulse series of one of a multi-shot type and a single type is arranged (¶¶ 0016,0017,0020),

Takizawa does not disclose wherein the pulse sequence is constructed by a pulse series based on one of a spin warp method, a spiral method and a radial method.

Edelstein teaches a spin warp NMR imaging that includes wherein the pulse sequence is constructed by a pulse series based on one of a spin warp method (fig. 1), a spiral method and a radial method

It would have been obvious to one of ordinary skill in the art at the time the invention was made for the pulse sequence constructed by the pulse series of Takizawa to be based on one of a spin warp method, a spiral method and a radial method as taught by Edelstein to “display more interesting detail than do the proton density ones”. In addition, to “to acquire NMR signals and reconstruct images use a variant of the well known Fourier transform (FT) imaging technique. . . .”. Mistretta at 1:45-67.

Regarding **Claim 29**, Takizawa discloses wherein said correcting section (fig. 1, item 407) is constructed so as to perform linear correction processing according to a spatially ununiform deteriorating degree (¶¶ 0029-0030) of said image data (fig. 1, item 405; fig. 8)

Art Unit: 2624

generated by the movement (e.g., fig. 8, spatial distribution items 1011, 1021, 1022) of said image pickup part (fig. 1, item 405, fig. 8).

Allowable Subject Matter

[9] **Claims 1-18, 20, 21, 24-27, 42 and 45** allowed.

[10] **Claims 22 and 23** would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. § 112, second paragraph.

[11] **Claims 37, 38 and 41** would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. § 101.

Reasons for Indicating Allowable Subject Matter

[12] The following is a statement of reasons for the indication of allowable subject matter:

Regarding **Claim 1**, the prior art of record does not teach including a non-correction with respect to two areas or more obtained by mutually synthesizing one portion of at least three areas or more in said image data of said image pickup part. **Claims 22-23** would be allowable by dependency. **Claims 37, 38, 41 and 42** by analogy.

Conclusion

[13] Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 C.F.R. § 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 C.F.R. § 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Art Unit: 2624

[14] Any inquiry concerning this communication or earlier communications from the examiner should be directed to DAVID P. ZARKA whose telephone number is (571)270-1578 and fax number (571)270-2578. The examiner can normally be reached Monday - Friday 7:30 - 17:00 ET.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta can be reached on (571) 272-7453. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/David P. Zarka/
Primary Examiner, Art Unit 2624